Harwood (Ed. C.)

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CLINICAL OBSERVATIONS

ON

INFLAMMATION OF THE MASTOID CELLS,

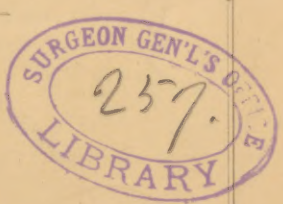
BY

EDWARD C. HARWOOD, M. D.,

Member New York County Medical Society; of New York Neurological Society; of American Medical Association; Late Delegate to, and Honorary President of the International Medical Congress at Brussels, 1875; Fellow of the New York Academy of Medicine, etc.

(A Paper read before the North-Western Medical and Surgical Society of New York, EDMUND FOWLER, M. D., President, with a Report of the Discussion by Members of the Society.)

Reprint from the VIRGINIA MEDICAL MONTHLY, Richmond, 1877.



1877:
J. W. FERGUSSON & SON, Printers,
Richmond.

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Mr. President and Gentlemen,—The paper as announced for this evening is founded upon one case, selected from several which have come under my observation.

It is not my purpose to enter into an elaborate and extended dissertation as to the nature and causation of the affection under consideration. Suffice it to say that the disease, in my experience, is more frequently the result of a strumous diathesis, cold, neglected otorrhœa following scarlatina and measles, etc. It is oftener observed in children than in adults; in the latter, it frequently results from traumatic causes and syphilis.

Case.—Julia Higgins, now before you, aged 10 years, residing in this city, had, as I was informed, always up to this time (April, 1874,) been a healthy and active child, with the exception that at the age of six she suffered considerably from whooping cough and scarlet fever, which were both severe. During the paroxysm of coughing, the cerebral congestion was of a remarkable character. She often had bleeding from the nose and ears, accompanied by vomiting. On recovering from her attack of scarlet fever, there remained a discharge from the left ear, which continued until about the middle of September last without interfering with her general good health. A few days before I saw her, while at school, she was attacked with ear and toothache, in consequence of which she was obliged to go home and remain there. So great was her suffering, that on the morning of April 18th, 1874, at 2 o'clock, her parents were obliged to seek the advice of a physician.

When I arrived at her bedside, I found her in convulsions. A hot water and mustard pediluvium was ordered, and dry cups were applied to the nape of the neck, but without the desired effect.

I then administered chloroform by inhalation, which promptly arrested the convulsions.

I now discovered that her pupils were widely dilated, giving no response to light, and that there was complete paralysis of the right side—the latter condition being first made manifest by the fact that when the bed covering was turned down from the chest, she would immediately pull it up again with her left hand. The left side immediately responded to irritation; but over the entire right side there was no sensation. I therefore diagnosed compression of the brain, from an unknown cause, and regarded the case as a desperate one. The pulse at the time (3 o'clock A. M.) was 160 per minute; temperature, 105°F. I administered* ol. tigli, gtt. ij, placing it well back upon the tongue, together with an enema,† composed of ol. ricini, ℥ss; ol. terebinth., ℥ss; aq. bul., ℥iv. In twenty minutes the patient arose from her bed, and walked in a delirious manner about her room, moaning the while; then she evacuated freely both the rectum and bladder; after which she voluntarily assumed the recumbent position—still, however, manifesting traces of delirium. The pupils now appeared natural, and readily responded to a strong light. At 5 o'clock A. M., the pulse was down to 120; temperature, 102°. I then ordered:

‡℞. Potassii iodidi.. ....℥j
Potassii bromid.....℥ss
Aquæ puræ.....℥iv
Syrup. glycyrrhizæ.....℥j M.

Sig. A desertspoonful every hour until my return, which was about 9.30 A. M.

On my return, I found her sufficiently conscious to recognize her friends, but some of those whom she knew most intimately she could not call by name. The treatment was continued with slight variation, administering the bromide mixture at longer intervals until the 22d, during which time I had ascertained that the cerebral trouble and hemiplegia were the result of inflammation of the mastoid cells. I determined to operate, and with that view I had this instrument (Fig. 1), made by Darrow & Co., of this city.

Fig. 1.

On the morning of November 23d, 1874, assisted by my friend,

Metrically rendered—
*℞. Ol. tigli, gram..... .65
†℞. Ol. ricini.....
Tereb. aa gram..... 14.76
Aq. bull.....118. M.
‡℞. Pot. iod. gram..... 3.69
Pot. brom..... 14.76
Aq.....118. M.

Dr. Charles A. Leale, having anæsthetized the patient with sulphuric ether, I made a crucial incision over the mastoid process, about one-half an inch posterior to the ear, down to the bone, which was found to be roughened. About two ounces of pus immediately made its exit. Then with a small trephine ($\frac{7}{16}$ths of an inch, Fig. 1), I cut through the table of the bone, and the removal of a corresponding-sized button was followed by a small amount of pus. The wound was then closed by two sutures, with the exception of the lower portion, which was left open for the exit of pus, and dressed with cold water.

1 o'clock P. M. Patient comfortable, with the exception of slight pain in the region of the wound. Pulse, 106; temperature, 99.8°. Ordered tinct. opii, if necessary to procure rest.

5 P. M. Temperature, 104°; pulse, 106; tinct. opii given.

Nov. 24, 10 A. M. Patient had a good night's rest—sleeping until 8 A. M., when bromide mixture was given, together with generous diet. Pulse, 100; temperature, 98.5°.

3 o'clock P. M. Pulse, 100; temperature, 99.5°. Sprayed the wound with carbolized soap and water, and dressed the same with carbolized tow moistened with warm water.

I shall not attempt to give a detailed statement of the symptoms and treatment; suffice it to say that the case was closely watched, all symptoms noted, and indications promptly fulfilled. She was ordered a generous diet, with as much fresh air as she could avail herself of; and no unfavorable accident supervened to prevent her rapid progress toward health, and I discontinued my daily visits on the 12th of the following month:

I again quote from my notes:

Dec. 21. The family have been attending to the dressing since my last visit. Some discharge continues from the external ear, as well as from the upper and lower sinuses of the wound I left the case, with instructions to call at my office if anything appeared to be wrong.

In five days, my patient called and was entirely well, with the exception of deafness in the left ear, and continued so until about two weeks since. Complaining of pain in the ear and tenderness over the track of the old cicatrix; syringing with warm water relieved her.

I recently mentioned the particulars of the case to my friend, Dr. D. Webster, who kindly requested me to send the patient to his office for examination. She accordingly went, and returned with the following note:

"No. 19 East 39th Street,
"New York, November 11th, 1876.

"*My Dear Doctor*,—Julia Higgins is, so far as I am able to judge, entirely deaf in her left ear. She does not even hear the tuning fork with it when placed against the forehead. She has

a large perforation of the membrana tympani, leaving only a rim on all sides, except the lower portion, where not a vestige is left. The auditory canal is normal, except that it is somewhat excoriated from being constantly bathed with offensive pus from the middle ear. That there has been loss of substance of this mastoid is evident enough.

"Hoping to meet you Wednesday night, I remain

"Yours sincerely, D. WEBSTER.

"P. S.—Cleansing and astringents are indicated. D. W."

This, Mr. President, completes what I have to say at present on the subject; and as it is the custom of the Society to allow its members to express their views on all subjects brought before it, I hope to be followed by remarks or the narration of cases by others, which will no doubt add material interest to this meeting.

Prof. J. L. Little, M. D., said: I have listened with a great deal of pleasure to Dr. Harwood's interesting paper on mastoid disease. The operation of trephining or opening the mastoid process, in cases of suppuration or caries of the mastoid cells, has become of late years a recognized procedure. In two cases which have occurred in my practice, after an incision was made through the soft parts and the bone exposed, a fistulous opening was found, leading into the mastoid cells. In a large proportion of cases, this condition will be found when the external incision is made, and all that is necessary for the surgeon to do is to enlarge this opening so as to permit a free escape of the pus. This can be very easily done, I think, by an instrument used by dentists called the "burr drill." These drills can be obtained of different sizes, so that the opening may be enlarged to any extent. (The doctor exhibited these drills to the Society, Fig. 2.)

Mastoid disease is rarely, if ever, a primary affection. In all the cases which have come under my notice, a discharge from the ear had existed for some time previous. Inflammation of the middle ear, with perforation of the membrana tympani, is the primary difficulty. Patients with so-called "otorrhœa," or, more properly speaking, suppuration of the middle ear, are always exposed to two formidable complications: *First*, Mastoid disease, and *second*, cerebral abscess by the extension of the inflammation through the roof of the tympanum. This last condition occurs more frequently than the first, and is always fatal.

In all cases where complaint is made of severe pain in the

head, accompanying a discharge from the ear, a careful examination of the mastoid process should be made, and if tenderness exists, or if the scalp is swollen and œdematous, at this point a free incision down to the bone should be made at once. In some cases, simple periostitis exists, and the incision gives immediate relief. If relief is not afforded, perforation or trephining of the mastoid should be resorted to.

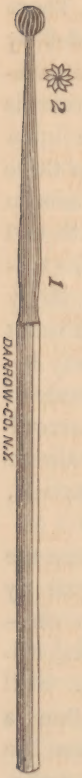

Fig. 2.

A case of this disease came under my observation while lecturing at Burlington, Vt., last June. I was called in consultation with Dr. A. P. Grinnell to see an old lady about 65 years of age, who had suffered from a discharge of pus from the right ear for some months. About two weeks before I saw her, she had severe pain in the right side of the head, and especially in the vicinity of the mastoid. Swelling over the mastoid took place, and Dr. Grinnell very properly made an incision, and a quantity of pus made its escape. On examination, I found the external meatus filled with pus, and so swollen that a speculum examination could not be made. The incision over the mastoid was enlarged, and a probe could be passed through the boneinto the mastoid cells, and as the pus seemed to have a free outlet, nothing more was advised to be done. Prof. D. B. St. John Roosa, M. D., of this city, was present, and concurred in the advice. In a few days after, however, brain symptoms manifested themselves, and the patient sank into a comatose condition and died.

In conclusion, Mr. President, I would call the attention of the members of the Society to the importance of a careful examination and the early treatment of all cases of aural disease accompanied by a discharge of pus from the ear.

Dr. C. S. Wood said: I have, during a period of twenty-five years, been so fortunate or unfortunate, as to have seen quite a number of cases of mastoid disease; some of them terminated fatally, while others have recovered by the supervention of suppuration from the ear. We all are well aware that the cause of the disease is suppurative otitis and is usually the result of scarlet fever. As a rule uppuration has existed, for a considerable period of time, the

child enjoying good health in the meantime, when, from exposure to cold, the discharge suddenly ceases, or nearly so, at which time cerebral symptoms at once become manifest. There is fever, anorexia, vomiting and restlessness, often preceded by convulsions, soon followed by coma and local or general paralysis. On examination of the post auricular region, usually, there is found, more or less redness, and tumefaction, pressure upon which causes the patient to cry with pain. In such cases there is no question about the propriety of making a free incision down to the bone, which, with the application of warmth and moisture over the ear, will, by the re-establishment of the discharge relieve all the threatening symptoms. In the majority of the cases, such will be the result, but, if the suppuration is not reproduced, the severe symptoms will not yield, when it may become necessary to make an opening through the outer table of the skull. Even after this operation many, perhaps, according to my experience, most of them die, as we do not always get pus as expected, it having formed, by a sort of metastasis, in some other portions of the brain.

I have recently lost a case, a girl aged six years, where the suppuration had existed for more than two years, caused by scarlet fever, which ceased suddenly after exposure, when cerebral symptoms immediately supervened, without any special evidence of mastoid disease, sufficient to justify an operation. Still she had strabismus, vomiting, coma, &c., and died within a week from the time of attack as I predicted she would unless the discharge from the ear could be re-established, which, unfortunately, was not the case.

I have lost several patients under similar conditions, and some of them after operating and expecting to find pus enclosed in the mastoid cells, and am of the opinion, that where we can re-establish the original discharge (which in the majority of cases we can do) they will recover; but if not, whether with or without an operation the prognosis is very grave.

Dr. A. R. Robinson said: Inflammation of the mastoid cells can follow either an otitis interna, or a periostitis partis mastoideæ ossis temporis. This latter inflammation can be either primary *i. e.* arise independently from mechanical injuries or chemical irritants to the part; or, as is generally the case, it is secondary to some inflammation in the neighborhood. The most frequent cause, however, of an inflammation of those cells

is an otitis interna purulenta. This form of inflammation can arise *ex contiguo* from inflammation in cavo pharyngo-nasali, and is a frequent sequence of scarlatina and variola, especially in scrofulous children. Inflammation of the mastoid cells appears to be a common accompaniment of a purulent inflammation of the middle ear; but it is rare for the inflammation to pass further inwards. When this latter occurs it does so by passing along the vessels and connective tissue bundles in the sinus sigmoideus producing a phlebitis in the sinus; or a thrombus is formed with or without a breaking down of the latter, and from here, the inflammation passes inward and produces a meningitis, or encephalitis or both. I can confirm Gubler in the statement that inflammation of the brain is not a frequent consequence of an otitis interna in young children, for though I have seen a great many cases of otitis interna purulenta in children—and consequently of inflammation of the mastoid cells, I have not yet seen a case in which the inflammation has passed to the brain or its membranes. When the inflammation is seriously threatening to extend inwards from the mastoid cells in spite of the operation of myringotomie or spontaneous perforation of the tympanum by the pent-up pus, the operation of trephining down to the cells should, according to all authority, be performed without delay. These cases, when operated upon, however, are usually not so fortunate in their termination as was Dr. Harwood's. Therefore, on account of this very danger of the inflammation spreading from the mastoid cells inwards and proving fatal, I think cases of inflammation of the middle ear especially, should not be neglected in the manner they usually are, either because the patients are unaware of the possible ulterior result, or that the physician in charge is not competent to treat such cases and allows them to proceed unchecked. Such cases, I believe, should always be placed in competent hands, and I never fail to direct such patients where they will receive the proper treatment. But few medical men possess the requisite knowledge to treat those cases, and if the forms of ear diseases which sometimes lead to inflammation of the mastoid cells, and from them to the brain or its meninges were early and judiciously treated, there would be fewer fatal cases from implication of the brain, and the valuable sense of hearing would be oftener preserved than is the case at present.

Dr. J. A. Adrain, of Logansport, Ind., being present, was called upon for an expression of his experience and observation in the treatment of the case under consideration. He asked: When there has been for a long time considerable swelling or tumefaction, redness, tenderness and pain, in the mastoid region, with or without a discharge from the ear, is the surgeon justifiable in cutting down and making an opening into the mastoid cells?

Dr. Little answered in the affirmative.

Dr. Adrain said: In the course of a long experience, and somewhat extensive observation, I have been led, and especially of late years, to make a free opening. In the cases where there had been a discharge from the ear, it almost invariably ceased, after an opening into the mastoid cells; and in these cases where no discharge existed, there was no subsequent discharge. In these cases when a discharge has existed for a long time, the incision should be kept open for sometime; otherwise the discharge will not be permanently controlled. I think the disease is most frequently associated with a strumous diathesis. When such is the case, tonics and mild alteratives, and in short, remedies which will elevate and sustain the vital forces will be of much service in accomplishing a permanent cure.

Dr. Harwood said: I have listened with much gratification to the remarks which have been made, and consider them of very much importance in connection with the subject as presented. Prof. Little's mode of operating differs considerably from my own. I see no reason, however, to take exceptions to it; but as a matter of fancy, I prefer to operate with the instrument I have devised, at the same time extending the privilege to others of selecting whatever mode of procedure or instrument that may be desirable. An ordinary carpenter's gimlet has been successfully used for this purpose. The important point to bear in mind is to operate early when necessary.